

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 August 2005 (18.08.2005)

PCT

(10) International Publication Number
WO 2005/075354 A3

(51) International Patent Classification⁷: **C01G 23/053**,
B01D 53/86, C03C 17/25, 17/00

(21) International Application Number:
PCT/FI2005/000074

(22) International Filing Date: 4 February 2005 (04.02.2005)

(25) Filing Language: Finnish

(26) Publication Language: English

(30) Priority Data:
20040186 6 February 2004 (06.02.2004) FI

(71) Applicant (for all designated States except US): **KEMIRA
PIGMENTS OY** [FI/FI]; Porkkalankatu 3, FI-00180
Helsinki (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KARVINEN, Saila**
[FI/FI]; Kuusamantie 37, FI-28660 Pori (FI). **LAMMIN-
MÄKI, Ralf-Johan** [FI/FI]; Pajatie 5, FI-28450 Vanha-Ul-
vila (FI).

(74) Agent: **BERGGREN OY AB**; P.O. Box 16 (Jaakonkatu 3
A), FI-00101 Helsinki (FI).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,
ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
24 November 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: TITANIUM OXIDE PRODUCT METHOD FOR MAKING THE SAME AND ITS USE AS A PHOTOCATALYST

(57) Abstract: The invention relates to a process for manufacturing a particulate titanium dioxide product, wherein hydrated tita-
nium dioxide is precipitated from an aqueous solution of titanium oxychloride by adding to the solution titanium dioxide particles as
crystal nuclei and the product obtained from the precipitation step is isolated and optionally calcined. The process is characterized
by the addition of crystal nuclei to an aqueous solution of titanium oxychloride having a content of >90 g TiO₂/l calculated as TiO₂
and the performance of precipitation at a temperature below the boiling point of the said aqueous solution and at normal pressure. In
addition, the invention relates to a titanium dioxide product prepared by using the process, the use of the product as a photocatalyst,
and a photocatalyst, which comprises a titanium dioxide product prepared according to the invention.



WO 2005/075354 A3